

Hobbies

WEEKLY

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A Novelty Toy MILK TROLLEY

HERE is an interesting little toy to make up, and one that will give endless fun to the kiddies. The trolley shown in our illustration Fig. 1 is made entirely of wood, all parts being $\frac{3}{8}$ in. thick except the wheels which are ready-made and nicely turned ready for the job. This is just the piece of work for the fretworker who takes an interest in kiddies and makes them amusing and fascinating toys from time to time.

The size of the Milk Trolley is, length 16ins., height to tip of handle 17 $\frac{1}{2}$ ins. and width 9 $\frac{1}{2}$ ins. Now the trolley must be made carefully, although it may be said 'it's only just a toy' and to some, anything will do, providing nails and glue hold it together.

Of course, there is much in the actual finish of the toy in respect to painting, and it should be well cleaned up after all the woodwork is done, and a couple of coats of paint given, or one coat of paint and one coat of enamel.

Floor First

The floor of the trolley is first made, and one piece of $\frac{3}{8}$ in. stuff 13ins. by 8ins. will be wanted for this, or two 4in. battens may be glued up to get the width.

Looking at Fig. 2 we see a plan of the floor with measurements added where the four mortises are to be cut, two for the side wheel brackets and two for the front wheel brackets.

When cutting the mortises with the fretsaw keep rather inside the drawn line so when the tenons are made on the wheel supports they will fit tightly.

The dotted lines on the plan of the floor show where the sides and ends of the trolley will come. It will be advisable to mark these lines on the wood so that holes may be accurately bored midway

between the lines for the screws or nails which will be driven up from the underside of the floor.

The two sides of the trolley will be marked out and cut according to the measurements given in Fig. 3. Glue and screw them to the floor and then make the two ends which will go in between the sides, as shown by the dotted lines in Fig. 2.

The Handle

One end, that with the handle attached, will be 6 $\frac{1}{2}$ ins. long by 6 $\frac{1}{4}$ ins. wide, with the top edge rounded over and made smooth. The other end will be also 6 $\frac{1}{2}$ ins. long but only 4 $\frac{1}{2}$ ins. wide, the

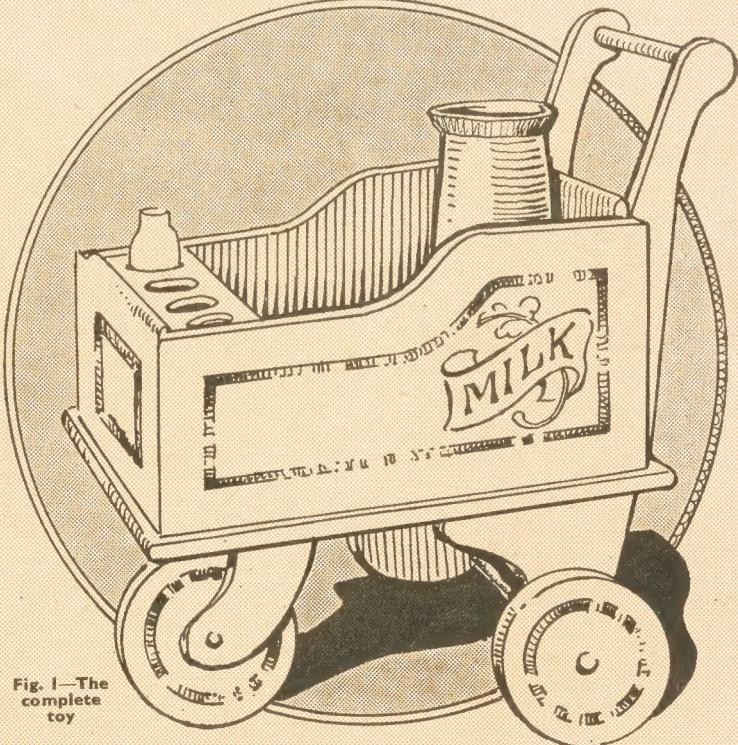


Fig. 1—The complete toy

top edge again being rounded off.

We now come to the wheel supports, and as these are shaped and cut wholly with the fretsaw, the outlines must be enlarged from the squared diagrams in Fig. 4. On a sheet of paper, light brown

edges and then see that the tenons of the supports fit the mortises correctly. Glue these securely in place and allow the glue to harden before fixing on the wheels.

Next prepare the two handle sections

To form the milk-bottle rack two pieces of $\frac{3}{8}$ in. stuff will be cut, as shown in Fig. 5, but in one the holes will be omitted. Both pieces will be fixed between the sides of the trolley, as seen in Fig. 3. Miniature bottles may be made by shaping some pieces of $\frac{1}{8}$ in. diameter rod and painting them up realistically.

Wheel Fixing

There are two methods which might be followed in fixing the back pair of wheels. A piece of $\frac{1}{8}$ in. diameter rod may be cut to the length required and passed through the holes loosely in the supports and glued into the wheels. Or a rail consisting, perhaps, of a bar of wood about $\frac{1}{2}$ in. by $\frac{1}{8}$ in. in section is fixed between the supports and the wheels, then put on with round-head screws, a washer being inserted between the heads.

The wheels should run freely on the screws, but at the same time, not loosely, so that they wobble. The front single wheel should revolve round a piece of $\frac{1}{8}$ in. rod whose ends are glued into the supports. Mention has been made regarding cleaning and painting the trolley and if desired the sides may be panelled, as

shown in Fig. 1, in bright colours.

A milk churn—or two, could be made by shaping up a block of wood about 2 ins. square and about $4\frac{1}{2}$ ins. long. Aluminium paint should here be used as a finish. A cross shelf may be added inside the trolley about half way up to take the churn or churms.

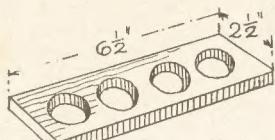


Fig. 5—Milk bottle rack

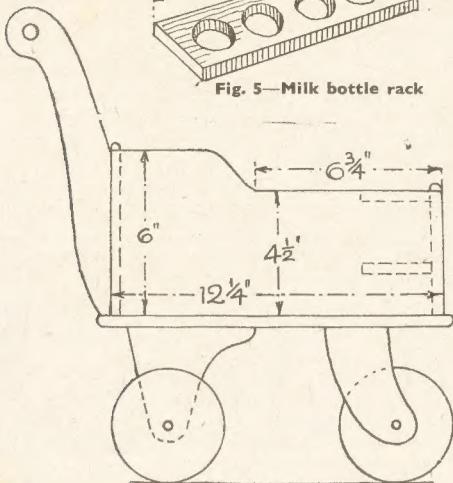


Fig. 3—Outline of side view with dimensions

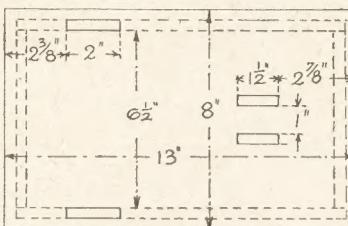


Fig. 2—Details of the floor portion

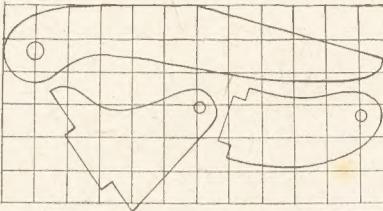


Fig. 4—Outline of the shaped parts

paper would answer admirably if no other is available, line in the seventy-two 1 in. squares shown and prepare the outline of each section by following carefully each square.

Next trace off each outline and transfer it to the wood and cut round in the usual manner. Glasspaper up the

by first cutting a 5 1/4 in. length of $\frac{1}{8}$ in. diameter round rod and gluing the ends of it into the tops of the pieces. Then mark lines on that end of the trolley where the handle sections will come, and bore holes for the screws which form the fixing. Glue and screws should form a sufficiently firm fixing.

From the Editor's Notebook—

I AM continually hearing from readers who are delighted with the model made from our design of St. Paul's Cathedral. It was certainly very popular and many have made additions to it for extra realism. For instance, Mr. H. B. Manning, of Grimsby, has fitted a tiny loud speaker inside, and whenever his wife listens to a church service on the radio it produces a very pleasing effect. Others I know have fitted the inside with much furniture, altar, etc., and many have added interior lighting to show through the windows. What ingenious people, some of our readers are, to be sure.

write—your full name and address please—including the name of the county.

HAVE you ever thought of the planning, time, and constructional work behind those free designs you get every other week? Or the fact that over 2,000 different ones have been published in these pages since we started? I am reminded of this by reader E. G. Barley who wrote from Frenchay Hospital, Bristol, where he had been for 11 months. And one of his joys on returning home, he said, would be to browse through 40 copies of Hobbies Weekly which had accumulated in his absence! He also mentions a letter from a pen-friend in Austria who had been a reader before the war and said it was quite popular out there. 'Yours must be' remarks Mr. Bailey 'one of the few periodicals you can enjoy from boyhood to old-age'. How right he is!

A REMINDER to readers in the Bristol area that there is now a fully-stocked branch of Hobbies Ltd. in the centre of that city. Although opened only late last year it already

serves a very great number of customers, who get all their needs with service and civility. A great godsend for any keen craftsman. The Hobbies shop is at 30 Narrow Wine Street, and the 'phone number is 23744.

R EADERS living in Devon may like to know of a Hobbies Exhibition now being organized by the Youth Service Committee of Tiverton. It is being held from March 28th to April 1st and an opportunity for all is provided in the various classes and age groups into which the schedule is divided.

Y OU never know what hobby can come from small beginnings, do you? In 1936 Mr. and Mrs. Rose of Bowling Green Avenue, Kettering, bought a bird as a pet for their small son. Keeping it proved fascinating and led to more and more interest, in keeping, breeding and showing. The success is shown in the fact that since that small start Mr. Rose has won nearly 300 awards, including many valuable cups. He also now owns over 100 birds!

The Editor

Did you know there are no less than six places named Seaton? Probably not—and you may not think it matters much. It does to somebody I expect, because a reader wrote me recently for a reply and just put Seaton as his home town. I really cannot ask the Post Office to go to every place of that name to see if Mr. — lives there, can I? So I must wait until he writes again—probably to go 'off the deep end' at me for not answering. You'd be surprised! Just remember this will you, when you

The second and final article for craftsmen on SIMPLE MARQUETRY

READERS who have perused the first article on this artistic craft can now go a step further. It is not always feasible to use a complete sheet of veneers every time for each kind of wood used, the waste would be disheartening, as it often happens that one portion of the design calls for quite a small bit of one kind only.

For example, Fig. 1 shows a pediment, in marquetry, and it will be observed that the central ornaments intended to be cut in some light wood, such as sycamore or holly, occupy a small portion of the total area. Here we can adopt a different method and save a lot of wood, besides using up some scrap pieces from previous work. Proceed in this order.

The Pattern

Make a drawing of the decoration, full size, of course, on thin paper, and at the same time make a carbon copy on brown paper beneath. Now refer to Fig. 1. The

around, to make all level, glue thick brown paper, one or two layers, as may be required. The whole is now covered with several thicknesses of waste paper, and laid in the press for a few hours.

Fine Fretsaws

Remove the pressed veneers, then paste the design accurately over the top. When this is dry, and a few hours in the press will help, the design can be cut out with the fretsaw. As stated before, only the finest blades should be used, and if knife-cut veneers, which are much thinner than the saw-cut varieties, care should be taken when cutting to keep the fingers pressed lightly, but firmly on the work as it is moved over the cutting table.

Cut the bordering first, and lay this and the outside shape, cut away with it, carefully aside. Then the ornaments can be sawn out. Split the veneers cautiously with a thin knife; avoid fracture or breakage, if you can, but do not worry if any occur, as the subsequent gluing will cover defects. Be careful, however, to keep all parts in their correct position to each other, to render the subsequent gluing and piecing together easier. Fig. 2 shows the parts of the pediment and how the scrap pieces of

to the pediment.

Turn the design over carefully, and remove with the scraper any blobs of glue or lumps of paper that might be adhering to the underside and prevent close contact with the wood. Scratch the surface of the latter (a piece of coarse glasspaper will do this), and glue both wood and design.

Press them closely in contact and see that all three parts are in true alignment to each other. If the design is trimmed close this will make aligning an easy job. Now press the whole until the glue is hard.

Unless the pediment is unduly long, the press already used may suffice, but if not it could be placed between spare boards first and then nipped in the press, as in Fig. 3. If too long for either method, then lay a board over and a weighted box on top, this will answer the purpose usually. The family tool box, if you possess one, makes a good heavy load to weight with as a rule. When the glue is hard, remove the pediment.

Cleaning the Wood

The design is now covered with its protective paper and glue, and must be removed. This, it must be owned, is generally a rather tedious job, as the work must be carefully carried out to avoid damage to the veneers. Unless saw-cut veneers are used in which case most of the unwanted paper, etc., can be cleaned off quickly with a smoothing plane, set very fine.

Otherwise, a good rubbing with medium glasspaper should be resorted to to shift the outside paper, then a cabinet scraper can be employed to remove the glue and reveal the inlay work on which

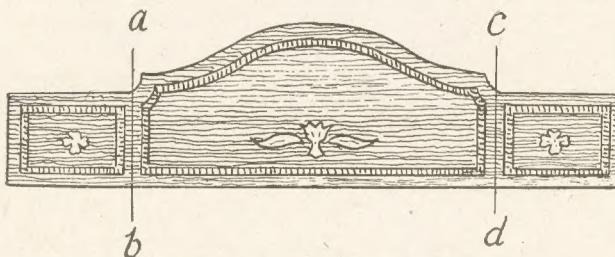


Fig. 1—A suggested panel with shaped pediment

background of the design should be of similar veneer to that used elsewhere on the article for which the pediment is intended. The bordering should be of a wood that will harmonise, or pleasantly contrast, with the rest, while the central decorations can be in holly, as stated.

Place a sheet of veneer for the background on a flat surface, and on this glue the carbon copy of the design. It may be mentioned here that if the length of the pediment is too much for the press (mentioned in the first article) the marquetry design can be cut across at a-b-c-d and each part glued down to a separate piece of the veneer. This makes it easier to manage, and can be adopted for similar outsize designs if preferred. Save unnecessary waste in material by previously trimming the veneers to nearly the size of the design, or its parts.

Border Veneer

The veneer chosen for the bordering can now be glued to the design to cover those parts generously, but avoiding waste. Place the pieces of veneer with the grain running from top to bottom, not lengthwise. The pieces of holly, or sycamore required to cover the central ornaments can now be glued in their proper places, and to fill the spaces

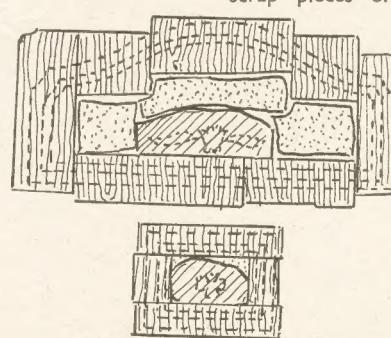


Fig. 2—Veneer pieces in position

veneers are laid to cover the design, and will be helpful.

Now remove as much of the unwanted paper and glue as can be done without damage, then, having selected the parts required, lay all, face upwards, on a flat surface protected by a sheet of waste paper.

Press them flat, then go over the surface with the glue brush and press a sheet of thin paper down. Give all a nip in the press, remove and see that all parts of the design lie quite flat, then let remain in the press for a while, not too long, when the decoration can be glued

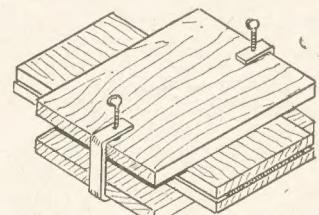


Fig. 3—Cramping the parts between boards

the time and trouble has been expended.

Any bad defective spots in the surface should be carefully filled with coloured stopping, and the outer edges of the pediment glasspapered to smoothness. Go over the finished design with fine glasspaper until the surface has a satin finish, then it is ready for polishing.

Those parts of the central ornaments, which can be improved with a little staining, can be touched up with a brush, using as little of the stain as possible, before polishing. It will be as well to give any stained parts a light coating of shellac varnish to set the stain before polishing generally is commenced.

The woodworker can easily make this convertible TRAY TABLE

THIS useful article comprises a tea or supper tray of generous size, with the addition of legs, which convert it, when desired, to a low table. An ingenious double purpose piece of furniture now on the market. Its advantages are obvious for afternoon tea on the lawn or in front of the fire, as the weather dictates.

The general appearance of the tray is shown in the view of the finished article. The legs, which fold under, and are hidden from view ordinarily, when opened out present the appearance seen in Fig. 1.

For making the article, $\frac{1}{2}$ in. thick wood can be used for the tray sides, with plywood for the tray bottom, and leg rails. The legs can be from 1 in. by $\frac{1}{2}$ in. wood, or cut from a $\frac{3}{4}$ in. thick piece of board. Choice of wood is limited, of course, a hardwood such as oak, beech, etc., if obtainable, or deal if nothing better can be got.

Parts Required

Parts of the article are shown with dimensions, in Fig. 2, and will be easily distinguishable. The long sides are cut to the length shown, the ends being sloped, the slopes starting at $\frac{1}{2}$ in. from each bottom corner, outwards. The dotted lines show where the bottom of the tray is to be fitted in. This should be of any thin wood available, not less than $\frac{1}{8}$ in., however. Plywood would be quite good here. A groove, $\frac{1}{8}$ in. deep, is chiselled out each side for its reception.

The ends of the sides are rebated $\frac{1}{8}$ in. deep for the tray ends to join to, as in detail (A). These tray ends are cut to the shape shown in the diagram, the shape being squared in 1 in. squares as a guide.

A good plan is to reproduce these squares full size, of course, on to a piece of stout paper, pencil in one half of the shape, then to double the paper outwards and cut through both thicknesses at once to the curve. Both sides must, perforce, then be alike. Lay the pattern on the wood and run a pencil round the curves to mark them plainly for cutting.

A keyhole saw will do this job quite

well, without labour, or a fretsaw, if a coarse blade is employed. For cutting the finger holes, bore a hole at each end of openings through the wood, and remove the wood between the holes either with the keyhole or fretsaw. The sharp edges of the openings should be nicely rounded off to ensure a comfortable grip for the fingers.

Assembly Hints

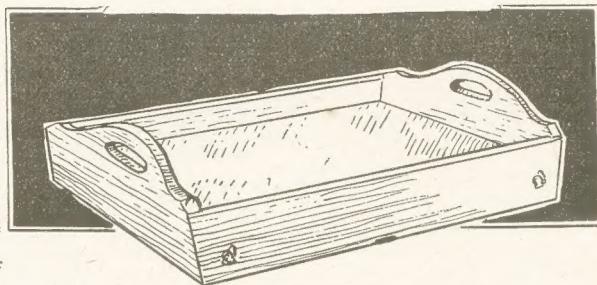
Now fit the parts together with glue and nails or small screws, making sure that the tray bottom is cut to the correct size to fit in place without straining the corner joints. A safe plan here is to fix one end of the tray with small screws first, then to test the fit of the bottom with the free end held in position with the fingers. Any necessary adjustment in size can then be carried out, and the joints permanently glued.

If the screws are also to be permanent, use those round-headed ones that look so much neater. To support the bottom of the tray each end, where no groove exists, a small slip can be glued in the angles underneath. A triangular strip, not larger than $\frac{3}{8}$ in. sides, should be used, to leave room for the legs to swing up for folding.

The Legs

The legs are cut to length and the ends trimmed to semi-circles, with $\frac{1}{2}$ in. radius. Holes for the fixing screws are bored in the centres of the semi-circles. These legs are fixed to the sides, inside of course, at the place indicated at (C) in Fig. 3, so they, when pulled down, splay out slightly. Note particularly that the cut-away parts of each leg face the same way, and are not paired. This will be apparent in Fig. 1. Fit the left side legs first, then the correct way to fit the right ones will be seen at once. Any error here will simply result in the legs not folding together properly.

It is a good idea to fit one side with stout brass screws and a washer, as at



(D) and the other side with brass bolts and a fly nut; it helps to fix the legs and ensure better stability. The legs can now be removed for fitting across rail between each pair.

This rail is shown in the inset sketch (B) in Fig. 1. Cut the rails from $\frac{1}{2}$ in. or $\frac{3}{4}$ in. wood, to the correct length, measured between the sides of tray, underneath. The ends are cut to form tenons, 1 in. long and $\frac{1}{2}$ in. apart, and the legs mortised to suit. Glue the rails in and refit the legs to the tray. This completes the job, except finishing.

Finishing Work

The whole work should be smoothed with a vigorous glasspapering and any nails punched down and stopped level. With a nice clean grained wood a stain of oak or mahogany would be as suitable as any, with a couple of coats of clear varnish to add a gloss. The stain and varnish combined could be used, naturally, but does not seem to produce such an even colour as when used separately.

However, that is not a point that need be stressed, as good results often depend more on careful application than the particular brand employed, most of which are fairly reliable. The staining, etc., should be done with the legs removed, and could well be attached after the rails are fixed across.

To keep the legs up after folding, a half button can be employed, as at detail (E) (Fig. 1). These are screwed to the under edges of the tray sides, underneath, of course, and in the centre. A slot should be cut for each, just deep enough to sink the half-button level, and allow the tray to stand firm.

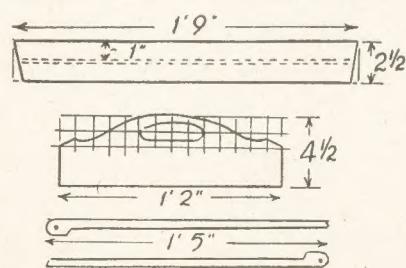


Fig. 2—Side and size of parts required

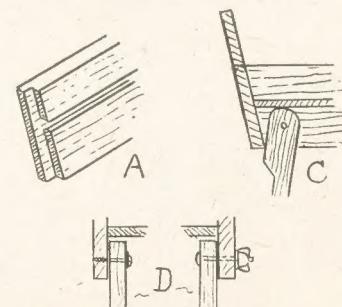


Fig. 3—Leg fixing details

A Craftsman's Notebook

Increasing Cupboard Accommodation

IT seems to me that in many cupboards some useful storage space is wasted, yet the home woodworker could soon alter matters with a few odd pieces of wood.

The idea is to fix up small shelves or fairly shallow racks on the inside of the door itself. They are arranged in such a position that when the door is closed the racks come just under the upper shelf but are high enough to be well clear of articles on the shelf below. Measurements need not be given here, as these will vary with different cupboards and woodworkers interested in the idea will soon be able to arrange such fittings to their own liking.

Besides making the most of available space these extra shelves prove very handy. In workbench cupboards the space behind the door can be utilised for screwdrivers and other small tools to keep them easily accessible and in ship-shape order. In kitchen cupboards they provide a convenient place for small articles such as salt and pepper pots, leaving the main shelf space available for larger articles.

A Nature Note

WHERE do so many creatures of the countryside get to in winter time, those animals and reptiles so frequently seen in summer yet entirely absent at this time of year? Their snug retreats are so carefully chosen that only by making a definite search could one hope to find them.

So far as frogs are concerned, at any rate, I found an answer to the question quite by chance. I came across some members of this family one morning early in the year while I was clearing away a pile of old bricks, mortar, and similar rubble that had stood undisturbed for some time in an out-of-the-way corner.

Soon after I started on the heap out came a large frog, and by the time I reached the bottom three or four more had made a sudden exit from nooks and corners among the stones. This, then, was one of the various places chosen by these creatures when they abandon the adjoining field.

How they fared after this untimely interruption to their winter slumbers I do not know. They jumped vigorously away towards a nearby hedge and were soon lost to view in the grass beyond.

The Model Way

THERE is nothing like an exhibition of work done to make one realise how much skill there is among model makers. Ability to use tools, a fine sense of proportion, attention to details, accuracy

and patience are some of the qualities to which those who enjoy this popular hobby can give full reign.

Besides providing an outlet for energy and skill, making models can help one to realise to a certain extent big ambitions that might not otherwise be practicable.

One home craftsman has always fancied planning and building a modern factory, but the real thing is beyond his means. With wood, composition board, cardboard, and other stock-in-trade of the model-maker, however, he aims to satisfy his ideas with a miniature, setting the buildings out on his own lines and

making extensions and developments as the fancy takes him.

A Workroom Aid

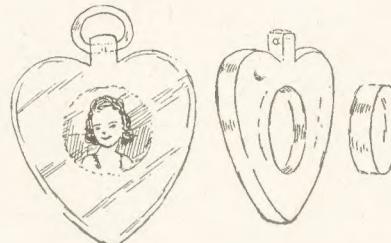
WHEN busy in the workroom occasions occur when we want to make quick calculations or temporarily jot down measurements, or we may even wish to make rough sketches and work out figures to explain a job to others who are interested.

Better than having to resort to paper and pencil every time is to have a slate or small blackboard permanently fixed on the wall convenient to the bench. Time will be saved and the big legible figures can be seen at a glance.

If the blackboard is preferred we can make this ourselves at next to no cost. After smoothing up a suitable board, a black surface can be obtained with one or two coats of Drop Black from the paint stores.

The Craftsman

A Perspex Heart Pendant



THE sketch herewith shows a useful little article that can be made out of a small piece of Perspex about 2ins. square. The novelties make an acceptable little present, especially for courting or engaged couples.

First, the shape is cut out of the Perspex which should be 'clear' and about $\frac{1}{8}$ in. thick. A hole is then drilled in the centre of the shape, about $\frac{1}{8}$ in., preferably with a steel twist drill that has rather a flat grind on the cutting edge. At the same time a small hole is drilled in the top of the heart to take the hanging loop.

Hole and Plug

The $\frac{1}{8}$ in. hole should be taken into the Perspex just over half the thickness and should be finished to give a flat inside surface with a small penknife or scraper. The hole is then cleaned with fine glasspaper and finished to a high polish with ordinary metal polish.

A plug is now cut out about $\frac{1}{32}$ in. larger in diameter than the hole and also given a high polish. This is important so that when the plug is inserted it does not show a join.

Two photo heads can now be cut out of some old snapshots, the same diameter as the hole, and pasted back to back. The whole job is now ready to assemble.

The heart is immersed a few moments in hot (not boiling water) and taken out when hot. The inside of the hole is quickly dried, the cut-out snaps are then inserted along with the plug, which is easily inserted, as the hole is now expanded.

When the whole thing is cold it will be found the plug has become sweated in very tight. The protruding part of the plug can now be filed down flat with the surface, all corners of the heart rounded, and the whole given a high polish.

Hanging Loop

A small loop can be made for the top by cutting a thin strip of Perspex carefully rounded and polished, and bending into the small hole at the top while it is hot. A small chain can also be made in the same way, or the heart can be attached to a string of beads.

The above article was made some time ago by the writer and looks very nice, as one can hardly tell how the snaps have got inside the heart.



Some interesting forms of analysis for non-metals in HOME CHEMISTRY

ONLY very seldom are non-metals found uncombined in a substance.

Nearly always they are found linked up with other non-metals forming 'acid radicles'. For instance, nitrogen is found as a nitrate or nitrite; carbon as a carbonate; phosphorus as phosphate, etc.

The only non-metals which you will find on their own so to speak, are fluorine, chlorine, bromine, iodine and sulphur. When they are found in a substance, the first four change the 'n' in their names for a 'd' and become fluorides, bromides, etc. Sulphur becomes sulphide.

Well then, now to analyse for these acid radicles. Boil the substance you wish to analyse with a solution of washing soda (sodium carbonate). Filter if necessary and reject any ppt. Divide the filtrate into four portions.

Acidify one portion with hydrochloric acid and add barium chloride. A white precipitate shows the presence of a sulphate.

More Results

Acidify another portion with nitric acid and add silver nitrate. You may get one of the following ppts.:—(a) white, insoluble in ammonium hydroxide—means either a chloride, cyanide or thiocyanate is present; (b) white, insoluble in ammonium hydroxide—means ferrocyanide; (c) pale yellow—means bromide; (d) yellow, insoluble in ammonium hydroxide—means iodide; (e) orange—means ferricyanide; (f) black—means sulphide present.

Now take another portion of your original filtrate and acidify it with acetic acid. Add ferric chloride. Here again, you may get one of several ppts. Deep-blue means ferrocyanide present. Blood-red means sulphocyanide. White, soluble in dilute hydrochloric acid shows phosphate present.

Those Present

To another portion of the original filtrate add ferrous sulphate solution. A deep-blue colour shows presence of ferri-cyanide. If no blue colour forms, add ammonium hydroxide. A yellow ppt. formed now shows oxalate present. If you get no ppt. either, then add strong sulphuric acid down the side of the test tube. A brown ring shows presence of a nitrate.

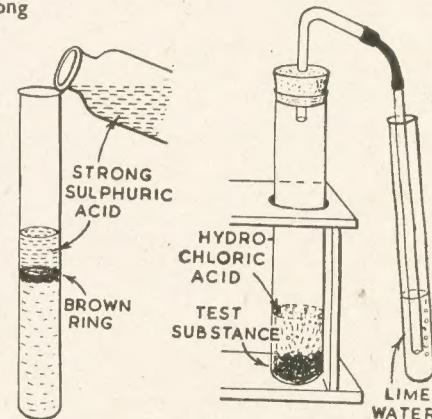
To distinguish between chloride, cyanide and thiocyanate precipitated by silver nitrate in the first of these tests, you carry out the following experiments. Remove the ppt. from the filter paper and place it in strong light. If chloride is present it will slowly turn violet.

If it does not turn violet add hydrochloric acid to a very small sample and smell. An odour of bitter almonds shows presence of cyanide. This odour is poisonous; do not smell more than necessary and dispose down the sink as soon as possible.

To test for thiocyanate, dissolve some of the ppt. in ammonium hydroxide and add ferric chloride. A blood-red colour shows the presence of this radicle.

The only other radicle which is commonly present is carbonate. You test for this by adding hydrochloric acid to your original substance and passing the evolved gases through lime-water. Use the apparatus shown in the drawing. If the lime-water turns milky then carbonate is present.

For all these acid radicle tests you just place an inch or two of your original filtrate in a test tube and add the necessary substances to produce ppts. or a colour change. Where the solubility of the ppt. is used as a guide to identification there is no need to filter before adding the dissolving liquid.



The experimental apparatus in use

For example, if you add silver nitrate and get a white ppt. you can immediately add ammonium hydroxide to the test tube. Then, if the ppt. dissolves it is either chloride, cyanide or thiocyanate; and if it does not dissolve it is ferrocyanide.

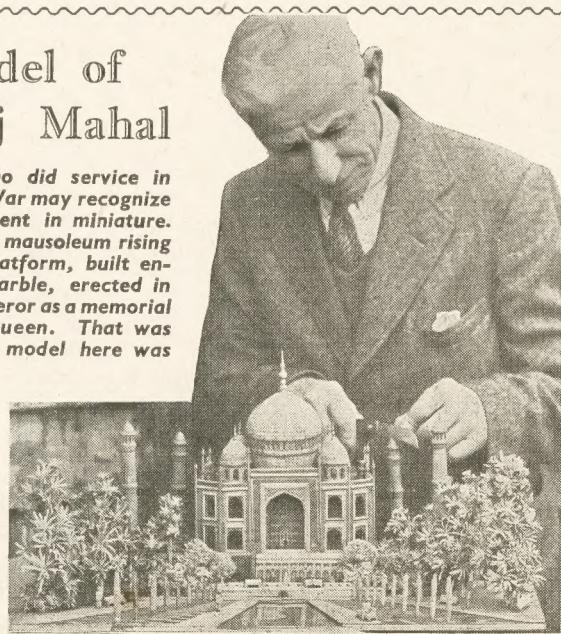
General Remarks

Work on a small scale and keep your apparatus clean. Mop up anything you spill as soon as you spill it. Make sure your chemicals are in air-tight bottles (not tins) and are properly labelled. Wash up used test tubes as soon as you have finished an analysis or you may not get them clean again! Never rush an analysis; give a ppt. time to form and a colour time to develop. If you are not sure of a result, do it again and again until you convince yourself it is either negative or positive. Enter up in a note-book not only the results of an analysis but also the procedures which produced those results. In this way you will soon memorise the procedures. And please do not be disappointed if experiments do not go well at first, or if you get confused. Experience will ensure success.

Now finally, if you have any problems or queries about analysis or chemistry in general, write to us and we will do our best for you.

A Model of The Taj Mahal

Many readers who did service in India during the War may recognize the great Monument in miniature. It is a magnificent mausoleum rising from a marble platform, built entirely of white marble, erected in 1629/49 by an emperor as a memorial to his favourite queen. That was the real Taj—the model here was made with the penknife you see held by the maker, Mr. Arthur Wells, a retired nurseryman of Heston, Middlesex. Evidently a very clever craftsman!



A practical clockmaker gives instructions for forming A NOVELTY CLOCK

HERE is always a certain amount of fascination about a mechanical toy, and when it can do a really useful piece of work the interest is greatly increased. The novelty clock described on this page, besides being an amusing working model, is quite an attractive and accurate timekeeper. Before the war these clocks were very popular and could be often seen in the clock shops, where they were always an attraction to both young and old alike.

Many of you may have wondered how they worked and would have liked to make one. Like lots of mechanical novelties the job of making this clock is really quite easy when you know how. The first and most important part needed is a drum clock—it can be just a timepiece or an alarm clock. The alarm part is not wanted and can be left as it is.

A clock usually found in a 3½ in. or 4 in. diameter case is the best for the purpose, and it should be in reasonably good going order, as it will have a

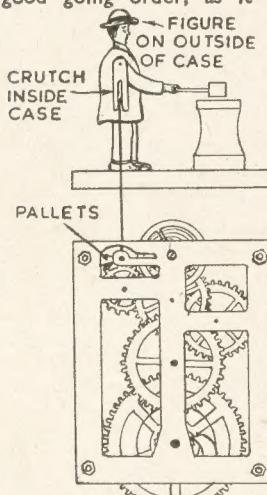


Fig. 2—Details of figure mechanism

wire fixed on to the pallet staff of the clock. The to-and-fro motion of the pallets is transmitted via the wire to the slotted plate fixed to the man's arm. This action causes the hammer to rise and fall with every beat of the clock.

Cut a piece of wood for the front of the clock case 5 ins. wide, 7½ ins. long in the centre and sloping off to 6 ins. at the sides. Any kind of wood is suitable but a piece of ½ in. oak-faced ply or other hardwood would do nicely.

Fixing to the Front

The next job is to fix the clock to this front part of the case. It would probably be best to leave the original metal or enamelled drum case on the clock. Then you can cut a circular hole just large enough to push the case through,

letting it project about ½ in. It can be fastened to the wood front with metal brackets soldered to the drum case. Or an easier method would be to cut the drum from the back into three or four strips, bend over and screw on to the wood.

Some drum clocks have the balance wheel at the top and some are at the bottom. If the clock you have is of the latter type, you must either change the dial round half a turn and bring the balance to the top, as in Fig. 1, or you can put the clock at the top of the case with the figure beneath. Either way is satisfactory and just as attractive.

The Working Parts

When the mainspring of the clock is completely unwound, undo the nut holding the plate together nearest the pallet staff, lever up the plate slightly and carefully remove the pallets. Now you can fix on a piece of thin brass wire about 2½ ins. long, make a loop on one end and solder to the staff, as shown in Fig. 3. The other end is bent at right angles so as to slide in the slotted crutch. Replace the pallets in the clock and screw up the nut, making sure that the balance pivots are in the cup screws and the balance impulse pin is in the centre of the pallet fork. Wind the spring up a few turns and the balance should then swing freely, with the wire moving backwards and forwards with each beat.

The Figure

The figure can now be cut from a piece of ½ in. hardwood. A piece 2 ins. square will make the figure, base and anvil, which are all cut in one.

The arm of the man and hammer are cut in one piece from thin sheet brass for lightness. A piece of needle about ½ in. long is used for the arm pivot wire, the arm being soldered on one end and the slotted crutch on the other.

The crutch is cut from thin sheet brass and is ½ in. long and ½ in. wide, the slot is just wide enough for the wire to slide in it easily. It is very important that this should be a good fit and not too large nor too small. The sides of the slot should be quite parallel and smooth—they can be burnished smooth with a needle.

Reducing Friction

Now very carefully measure up to find the position for the figure. Glue it on to the front and when dry drill the hole for the arm pivot wire. This hole can be larger than the wire because two small plates of metal are pinned on to each side to act as bearings, as shown in Fig. 3. There is, therefore, much less friction and it reduces the work the clock is called upon to do. Before fixing the slotted crutch on to the pivot wire a small washer is pushed on and

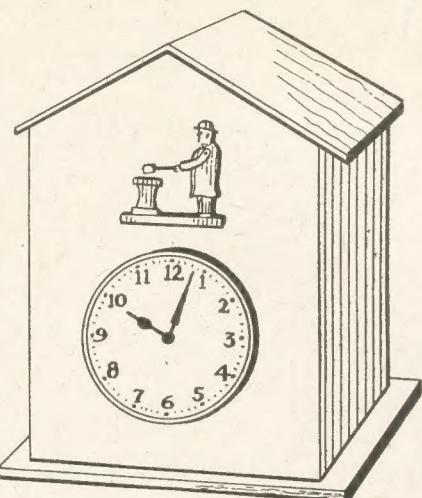


Fig. 1—The figure fitted to the clock front soldered at the back to reduce the end play. Then the crutch is put on and soldered.

Testing

The clock is now ready to be tried out, and if you have followed the instructions carefully the man should start his monotonous task of beating the anvil. A spot of thin oil on the two pivot bearings and another on the wire in the crutch will make his task much easier.

You may find it an advantage to add a small counterpoise arm on the back of the pivot wire to balance the weight of the arm and hammer, but that you must find out by experiment.

The Case

When the clock is going nicely we are ready to proceed with the making of the case, as so far we only have the front board. For the two sides cut pieces 6 ins. long, 3 ins. wide and about ½ in. thick. Each side of the sloping roof is 3½ ins. long and 4 ins. wide and this can be of thinner wood. The base is 6 ins. long, 4 ins. wide and ½ in. thick. All these

(Continued foot of page 280)

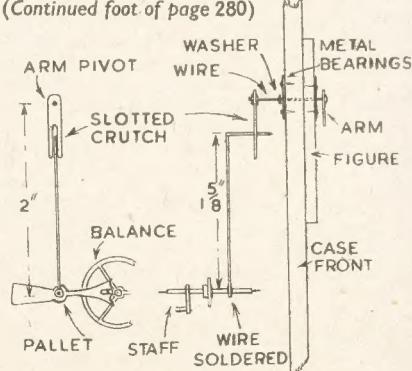


Fig. 3—Details of the wire to the figure

The handyman can employ his time well with these PRACTICAL HOME JOBS

ONE advantage of being a handyman is that you can often make and fit in that odd little piece of furniture which no regular firm would ever think of making. Also, one's valuable knowledge as a hobby enthusiast is useful because it enables you to make neat finishes and take time over the job.

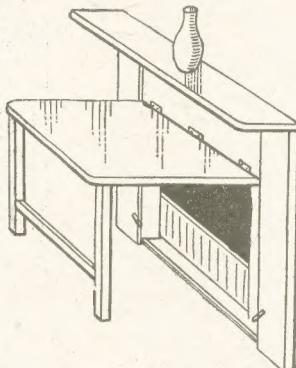


Fig. 1—A fireplace folding table

The plentiful supply of hardboard, now off permit does help quite a bit because hitherto one has not been able to get material for a large surface.

In Fig. 1 is shown a simple table device which would be a blessing in any small kitchen. Note that it is just a question of using up the disused fireplace space. The aperture should be carefully measured first so the flap (otherwise table) fits neatly in when not in use.

Using Hardboard

It is not much use suggesting $\frac{1}{2}$ in. plywood because this still seems to be unprocurable. The best medium is hardboard, which can be purchased in large sheets, some up to 4 ft. by 6 ft. One side is fine and smooth, the other is of a mottled texture. Have the smooth side to the top as it will then polish well.

On the outside corners round off and support all round the edge with a square wood about $1\frac{1}{2}$ ins. by $1\frac{1}{2}$ ins. See this is well sanded down to avoid damage to clothes. Glue and nail the edge on. Over the fireplace it will be held with three hinges.

The legs can be made from $1\frac{1}{2}$ in. square wood with a cross-bar as shown. This fitting will hinge underneath so that legs will fold underneath flap when

table is let down or, in other words, closes up the front of the fireplace.

As it will fit right inside of the aperture you will need a small beading along the floor so that it closes flush. A small turn-button on each side of the fireplace, near the floor will hold the flap down.

Bedside Table Cabinet

Small bedrooms often create a problem when it is necessary to have a bedside table. The best plan is to make a small one which will fit in anywhere. Measure the height of the bed and the space available before getting out a plan of the table first, because it involves a fair amount of framework to be made. The top, middle section and floor are all the same shape and size. Plywood can be used for this, or hardboard, whichever you can get. The Cabinet is shown in Fig. 2.

The top section is for books and the base part has a handy little cupboard. Cut the two sides out and fix the three-quarter shaped sections to make the whole framework firm. Added $\frac{1}{2}$ in. strips under the shelf, base and top will be helpful. Cut the lower cupboard panel from thin plywood, taking the space for the door right out. Note that this can then be fitted in on the frame (Fig. 3), which provides the skeleton on which the door can be fitted.

The door is then made, as shown in sketch Figs. 4 and 5, and hinged in position. Small beading must be added to keep door in position when shut. To keep off the ground, three short cotton reels can be added on base. When not in use at the side of the bed this table will stand in any corner and by its shape will not be in the way.

Fitments in the kitchen are always welcomed but you should get busy with

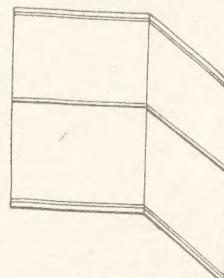


Fig. 3—The framework

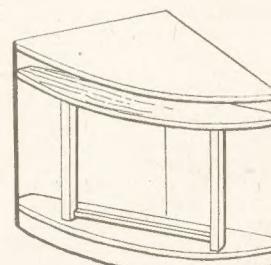


Fig. 4—The door holding parts

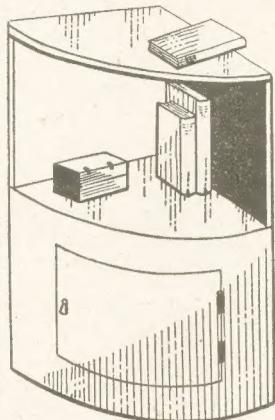


Fig. 2—The curved front cabinet

Brooms are 4 ft. 6 ins., and mops around the same height. A carpet sweeper is 12 ins. wide and 4 ft. 6 ins. high.

Buckets are always in the way. A space for them can be 12 ins. wide and 14 ins. high. Types vary, but this is a good average. Hand-brooms are 12 ins. to 15 ins. long. Bottles can go up high, if not too bulky and need a good 14 ins. and width of 4 ins. A general measure up in the kitchen and you will find that you can probably, with careful planning, get all these items, and many more packed away safely, conveniently and tidily.

The writer knows a craftsman who first did his own kitchen with well planned fitments. He now makes a living at it and has a thriving business!

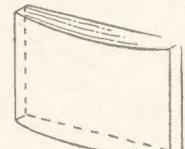


Fig. 5—The shaped door

Novelty Clock—(Continued from page 279)

pieces should now be glued to the front board, angle pieces can be used to strengthen them if thought necessary.

A door is fitted on the back of the case to allow access to the works for winding the clock and any adjustments that may be necessary. This is quite a simple job and no instructions are

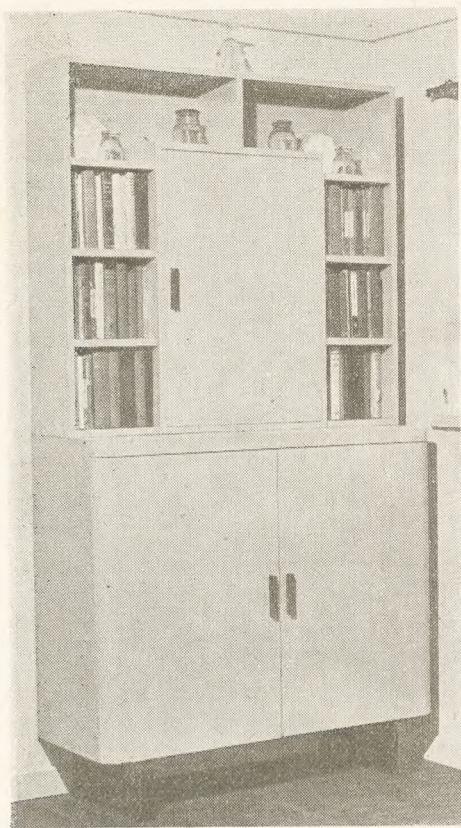
necessary to the home handyman.

The case is now ready for staining or painting in whatever finish takes your fancy. The figure should be done in gay colours, either poster colours and varnished or in enamels. A little time and trouble spent in this finishing will make the clock the envy of all your

friends and, perhaps, they will give you orders to make some for them.

It is not necessary to stick to the man and anvil type of figure. You will doubtless be able to design one of your own fancy, such as a hen pecking food from a bowl. Keep a look out for suitable subjects to use for this purpose.

How the handy carpenter can add to his home with A MODERN CABINET



The cupboard and bookcase on the lower cabinet

DESPITE the difficulty in obtaining suitable materials, the combined cabinet, bookcase, and cupboard shown in the photographs and drawings will appeal to most woodworkers because of the furniture's handsome modern appearance and the many practical uses to which it may be put. All the wood and board used in its construction have been obtained by persistent visits to stores, builders' yards, and even auction sales. Only few will say that the finished product is not worth while.

As Two Units

For a house where living room is restricted, the furniture proves a boon, for it serves the triple purpose of bookcase, handy cupboard, and chest of drawers, but occupies only 6ft. by 3ft. 3ins. by 1ft. 2ins. It may be used, however, as two separate units, and experience shows that it fits in excellently with modern decoration schemes and will even function as a kitchen unit. Because it is finished in paint, its colour may be easily and swiftly changed to suit its surroundings.

Special features are the smoothly rounded edges to the cabinet doors; the

bevelled feet, painted black to contrast with the pearl grey of the whole; inexpensive, easily fitted magnetic door catches; and a 1½in. overhang to the cabinet's top both for constructional purposes and artistic effect.

Owing to the wood difficulty, it may be necessary to vary some of the following measurements according to the material obtained. In the furniture illustrated, the cabinet, or lower half, excluding feet, is 30ins. high, 39ins. wide, and 14ins. deep. Because of the weight of the filled bookcase, it is advisable to use good quality ½in. tongued and grooved for sides, top, bottom, and middle shelf. Make up the sides and the top to 12½ins. deep, but note carefully that the bottom and centre shelf must be 13½ins., i.e., 1in. extra, to meet flush with the finished doors.

Assembling

When assembling, use strong joints. A common dovetail is recommended for the top, bottom and sides, but the centre shelf requires only an ordinary housed joint. A single sheet of ½in. plywood is most suitable for the back, but you may well have to be content with an ¼in. board substitute, which is becoming increasingly easy to buy.

Next tackle the cabinet doors. These are flush, and let into 1½ins. by 2ins. planed deal posts, which are finally rounded off, as in (E). The best door material would be ½in. hardboard, but it may be necessary to make two ordinary small door frames and cover them with ply or board. Each frame should be of ½in. by 1½in. planed deal, made up to finish 28½ins. high by 17ins. wide, and jointed, as in (D). When you clothe the frame with ply or boards, you must have a ¼in. overlap at one side for fixing the door to the shorter side of the post. (See E).

Do not round the post until you have fixed the door. To achieve this, use a coating of glue, and panel pins driven through the ply overlap, as well as diagonally through the door frame into the post. A few long slender screws may also be used.

Careful measurements are important to ensure that the two finished doors, when fixed to the posts and hung, fit neatly, both across the width and in line with the bottom of the cabinet. Carefully round the posts with a plane before fixing the butt hinges, which should be 2in. brass; they are fixed finally to the side (not

the front) of the cabinet.

Shelves and Doors

But before you can hang and close the doors you must saw out from each end of the bottom, and the middle shelf, a piece 2ins. long by 1in. deep approximately, to admit the posts when the doors are closed. The inside of the closed doors should then be flush with the bottom, and the centre shelf, which act as firm stops. But it may be necessary to plane ½in. or so off these two to get the doors flush.

To the centre shelf, fix catches or locks, as you prefer. 2in. magnetic catches are a novelty, and easily fitted, comprising metal strips inside the doors, and the magnets themselves beneath the shelf.

When you have hung the doors, there should be a 1½in. gap at the top front of the cabinet, right across and approximately 2ins. deep. Close this gap with a length of wood sawn and planed to fit flush with the top and with the doors, and round the ends to match the rounded posts. Deliberately leave this job till last, because its size can be varied to overcome any small discrepancies in the height and thickness of the doors.

The Feet

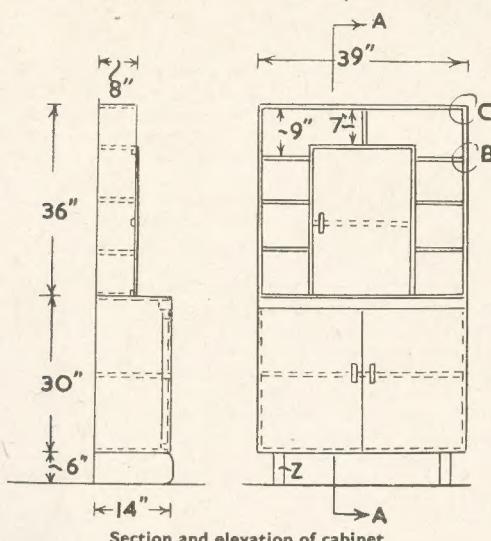
The feet are 14ins. deep by 6ins. high by 2ins. wide. They are fixed with 1½in. screws through the bottom of the cabinet, and the fronts are rounded. The door handles should be hardwood rather than metal. Those shown are simply-carved walnut strips, held with screws from inside the doors.

The bookcase and cupboard portion is 36ins. high by 39ins. wide by 8ins. deep. If possible, use ½in. wood for sides, top, and bottom, but ¼in. will do for the shelves. During construction, good halved joints will serve, as (C).



The lower cabinet as a separate unit

The centre cupboard is 28ins. high by 20ins. wide overall. That shown in the photograph is actually 1in. deeper than the bookshelves, to make the front project for appearance sake; otherwise the structure looks excessively flat. Projecting the cupboard is not difficult; the bottom of the bookcase is made up to



Section and elevation of cabinet

9ins. instead of 8ins. like the sides and top, and then a piece 1in. deep by 9½ins. long is sawn out from each end of the front edge, as at (F).

Both the uprights and top of the cupboard, of course, are also 9ins. deep. Halved joints are used for the uprights to

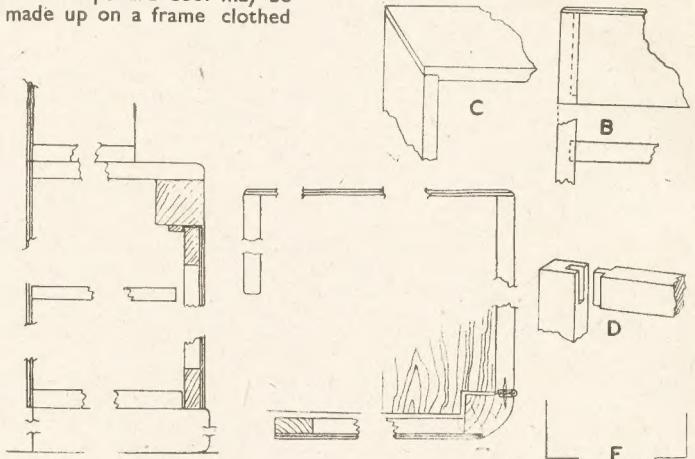
top assembly of the cupboard as (C) but the uprights are joined to the bottom with housed joints.

For all the shelves (see B) including that in the cupboard, and the 7in. upright above the centre of the cupboard, housed joints are also used. Note that, for concealment purposes, the trenches are stopped 1in. from the front edges.

The cupboard door may be made up on a frame clothed

Painting will obliterate any small defects. Choose a colour to tone in with the surroundings. Thoroughly smooth all rough surfaces with plane and glasspaper, and stop any cracks with a suitable wood paste. Prime the wood-work without stint, and apply at least two coats of undercoat, though you may well need three.

Care at this stage to get a first class



Details of the various joints mentioned in the construction

with board, as described for the cabinet doors, but in this case the butts are fixed in the customary position. If you wish, put additional shelves in the cupboard, bearing in mind what you will use it for, but these need only be on runners.

surface will make the application of the finishing coat both easier to apply, and better in the result. When the whole task is finished you will possess something of which, you will have a right to feel proud. That is, if you have done it well and followed construction carefully.

acetone on to it, cork tightly, then leave for 48 hours, but give it a shake now and again, after use, cork tightly.

Metal Worker's Vice

WHEN model making in tin, it is often found that a piece of tin which has to be bent at right angles, is too long to go into an ordinary bench vice, so this device will be found invaluable. Take two pieces of 2in. by 2in. hard wood about 12ins. long, and

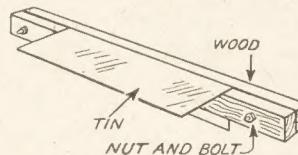
with. They are hammered lightly into the edge of the turret and left projecting at a slight upward angle.

'Gem' Bearings

WHEN one is doing a lot of fretwork, dust collects round the bearings of the axle beneath the cutting table. A certain amount of this must go down the oil holes, and so gradually makes the running harsh. To prevent this, cut off the heads of two nails, leaving a stump of nail to them, and insert in the holes. They make fine caps, easily removed.

For Aquarium

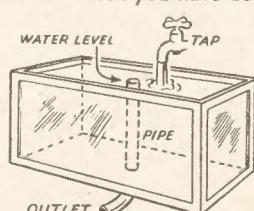
TO circulate water in your aquarium, all you have to do is to get an odd length of pipe and cut it to height of water level. When you have done this,



holding both together, drill holes at each end for nuts and bolts. To ensure a smooth surface on which to bend the metal, the two bolts should be tightened up and the top face smoothed with a plane. The sketch will make the idea clear.

Guns For Model Naval Ships

WHILE making the guns of the small waterline models of battleships (the designs of which have appeared in Hobbies Weekly), instead of using wire for the barrels, an alternative is to use gramophone needles which are finished



get some solder and Fluxite and solder the pipe into the aquarium as shown in the picture. The top is just below the edge, but forms a perfect overflow.

The home mechanic needs only bits and pieces for this AUTOMATIC GAS-LIGHTER

THE electric gas-lighter as shown in Fig. 1 is extremely convenient, useful and novel in that it requires no switch for its operation, the lighter being automatically switched on when inclined towards the gas-jet.

This is accomplished by an extremely simple and effective switch, as shown in Fig. 1 (A). The device consists essentially of a small copper or brass tube containing a loose steel ball. Both ends of the tube are sealed and one end incorporates a contact which is connected to the circuit. The assembly is secured to the battery casing by soft-soldering, which ensures a satisfactory mechanical and electrical connection.

When the lighter is used, it is naturally held past the horizontal plane pointing downwards. The steel ball rolls down the tube and comes to rest against the contact, thus completing the circuit and actuating the lighter. When, after use, the lighter is replaced in an upright position, the ball rolls back to its former position and so breaks the circuit.

From a Handtorch

To construct the lighter, a fairly large hand-torch is required. The two-cell model is the most satisfactory type to use. A 6in. length of $\frac{1}{8}$ in. external diameter brass or copper tube is required for the element extension (B) and one end is expanded with hammer and opened sufficiently to take a M.E.S. bulb holder (C).

The expanded end of the tube is plugged below the expansion with a plug of cork or wood (D), a small hole being

drilled lengthwise down the same, and a length of insulated wire inserted and secured on the outside with a blob of solder, thus forming the contact. The other end is similarly blocked (E), bringing the connecting wire through and soldering as previously described. The plug in this case, however, should be flush with the end of the tube, with the contact appreciably protruding above.

Tube Assembly

The tube assembly is then inserted in the torch bulb-holder, of course, previously removing the glass front, pushed down as far as possible, and well sweated into position with solder. Care should be taken to see the contact will make satisfactory connection with the centre electrode of the battery when it is in position.

The M.E.S. bulb-holder may be taken from an old torch or purchased for a few pence from an electrical stockist. This is inserted in the expanded end of the tube and well soldered into position, observing that the distance between the end of the holder and the contact, permits of easy connection when the heating element is screwed into position.

The Tube

Before proceeding further, a few notes on the expansion of the tube may be helpful. The tubing should be fairly lightly held in a vice with lead-lined jaws. Too much pressure should be avoided, otherwise the tube may collapse internally and become useless. The drift should be tapering, and must be worked around the tube with a series of

light hammer taps, until the size is correct.

Copper is fairly easy to work, but extreme care should be used when working brass, to avoid any splitting or cracking of the metal. It is advisable, and, indeed, a necessity to anneal and soften the metal before and during work, to preclude any such possible damage occurring.

The automatic switch can be constructed from any convenient size brass or copper tubing, but for appearance sake it is suggested that the external diameter should not exceed $\frac{1}{2}$ in., while the overall length could be between 1 $\frac{1}{2}$ ins. and 2ins. The interior of the tubing should be perfectly bright and clean, and it is a good plan lightly to smear very light oil over the surfaces to prevent any subsequent formation of tarnish, etc.

The steel ball (F) must be a perfectly free fit in the tubing, and here again, the ball must be absolutely bright and clean, and also preserved in that condition with a smear of light oil. One end of the tube is closed by soldering a small metal disc into position (G). The steel ball is inserted, and the other end of the tube sealed by a cork or wood contact plug (H), made as previously described. A small hole is made in the torch casing adjacent to the reflector, the insulated wire inserted and soldered to a convenient part of the reflector (I).

It is not necessary to remove the torch switch, as it may be useful for operating the lighter in circumstances where the automatic switch will not work, i.e., when igniting a gas-jet with the lighter held in a vertical position.

The Element

The heating element (J), which can be purchased practically anywhere for a few pence, is next screwed into the end of the extension tube, and the lighter is ready for instant and efficient service.

One precaution should, however, be observed, and that is to make sure that the lighter is always replaced in an upright position after use, to ensure the automatic switch breaking circuit. As a precaution, it is as well to devise a simple attachment to fit on the gas-stove or nearby, whereby the lighter can be returned in its correct position after use.



Photo—Huddersfield Examiner

HOBBIES IN HUDDERSFIELD

ALMOST everything from a patch-work quilt to a model jet aeroplane was on show recently at a Hobbies Exhibition in Huddersfield, sponsored by the Rotary Club of that town. The range of work and models, of course, included many of our designs made by enthusiastic craftsmen, and the picture shows the interest in our model Stage Coach shown by the Mayor (Ald. D. J. Cartwright). With him is Dr. J. W. Hirst to whose efforts the success of the Exhibition was largely due. One novelty was an orange tree which bore ripe fruit, whilst another exhibit which drew much excited attention was the model jet plane which claimed a speed of 110 m.p.h. The exhibition continued for a week, and the interest shown was continuous and widespread. Hobbies are becoming more and more in demand as a palliative against the rush and mechanisation of these times. And the pages of *Hobbies Weekly* provide more help than any in this matter.

Miscellaneous—

(Continued from page 287)

STAMPS! Send stamp for approvals. Choose your own free gift. Packets, sets and single stamps.—H. W. Harman, 6 St. Patrick's Road, Coventry.

WHEELS for toys, and other accessories. Full lists will be sent on application to The Joyden Toy Co., 193 Chase Side, London, N.14.

PLYWOOD offcuts. Birch and Gaboon in various thicknesses. Handy sized parcels for the cabinet, toy, model maker, and all handicrafts. Parcels made up in £1 and 10/- lots. Carriage paid. Send P.O. to Reeves, Plywood and Timber Merchant, 33 Front Street, Monkseaton, Whitley Bay. Tel. W.B. 4677. Due to exceptional demand we cannot promise delivery under eight days.

£5 to £20 weekly earned at home, running your own Mail Order business. Details, 1d.—Stebbing Publications Ltd., (HB) Naphill, High Wycombe.

BLUSHING, shyness, nerves, self-consciousness, fears, ended. Details under plain cover, 1d.—Stebbing Treatment, 28 (HB) Dean Road, London, N.W.2.

AMAZING new Craftwork discovery decorates leather, Perspex, plastics, lampshades, wood, etc., in beautiful gold, silver and colours. The 'Monogold' Embossing Outfit is easy to use and gives astonishing results. Complete Outfit costs only 7/6, yet will earn pounds.—Dawson & Co., M1, 130 Park Street, Oldham.

FLEXIBLE moulding compound for plaster casting.—Dohm Ltd., 167 Victoria Street, S.W.1.

BE Taller. Quickly! Safely! Privately! No appliances—no tablets—no dieting. Details, 6d. stamp.—Malcolm Ross, Height Specialist, BCM/HYTE, London, W.C.1.

MODELS. You can make lasting stone-hard models with Sankey's Pyruma Plastic Cement. Supplied in tins by Ironmongers, Hardwaremen and Builders' Merchants. Ask for instruction leaflet.

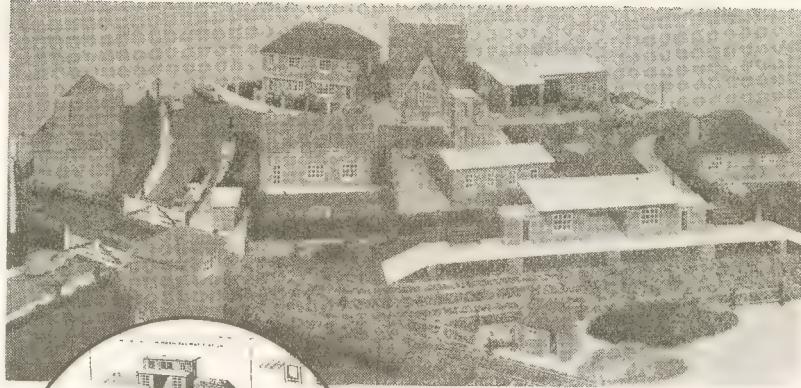
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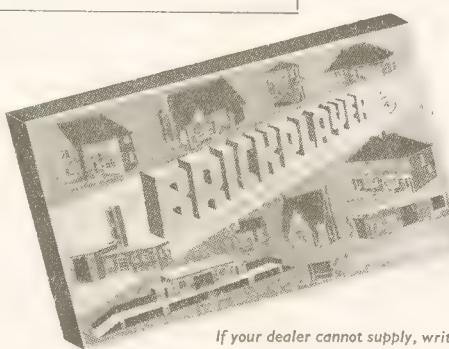


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CHRISTMAS presents are very often the spur needed to commence the hobby of stamp collecting which should last a life-time. Now that we have a new album, how long will it remain in its present clean state? It should be for all time and if you are going to collect properly it will be for all time, too.

The writer is still using the two loose-leaf covers he bought second-hand in 1921. The leaves inside are new as the type of page has been changed and other similar covers have been bought to add to them, but the originals are still doing duty. The secret is care, and let it be said now that if you do not use care then you will never be a philatelist.

How often is the question asked 'What should I collect'? 'Do I put in stamps cut from off a printed card or from a letter card'? 'Do I keep stamps taken from a receipt or from some legal document'? Well, the answer to the

first question gives the answer to all the others. A philatelist collects ADHESIVE POSTAGE STAMPS.

The word adhesive means that stamps already printed on a card are not acceptable and the word postage cuts out all

stamps used for inland revenue purposes. Some countries—and Great Britain is one of them—uses her postage stamps for inland revenue purposes as well and the only way of telling if a stamp is a postage stamp is to make sure that the cancellation is postal.

You all know the way in which a stamp on a letter or parcel is cancelled—the ink is black and the stamp is generally metal (sometimes rubber on parcels). But the usual receipt stamp has writing on it or possibly a rubber stamp mark which is more often in violet than any other colour.

Watermarks

Another worry which the beginner has concerns watermarks and perforations—should varieties of watermark and changes in perforation be collected? This is not quite such a simple question to answer. Later on you will certainly have to take both of these into account, but just at the start it is adding a difficulty at a time when things need simplifying.

So these might be left with advantage until a collector has a collection of about



An Australian on Service

1,000 stamps. By then he should have a stamp from each stamp-issuing country; be able to identify the various stamps and put them in their proper place in the album. He will then be wanting fresh fields to conquer and that is the time to tackle the new difficulty.

It is a great help if you know for what you are looking. That is to say, what is the possible water mark and just what it looks like. The early British stamps will generally have a crown and the letters 'C C' or 'C A' either single or multiple. That means that if it is what is known as 'Single Crown C.A.' then you would expect to find a Crown and the letters C A underneath and both in the centre of the stamp.

How to Tell

When you hold the stamp up to the light you generally get the best view, but, of course, it will be reversed if you look at the back of the stamp. If you still have difficulty then wet the stamp, and if you still cannot decipher what it is, then put a little benzene on the back of the stamp. This will not hurt the stamp and will soon dry off.

In order to obtain some idea of what it is you are looking for take a piece of the stamp edging off the current postage stamp sheet. Hold that up to the light and you will clearly see the watermark—G VI R with a crown above it. This is repeated many times and is known as a multiple watermark. A watermark detector is a plain black surface. When you buy one it is frequently a small black pin tray, but any black surface will do.

Perforation Differences

Next you will have to consider if you are going to take into consideration differences of perforation. Again, the state of your collection should be a good guide, also the size of the album. If you have a small album then you can hardly allow sufficient space to collect differences in perforation but if your album is large and will serve you for many years to come, then certainly you will want to deal in perforations.

Rule of Measurement

You all know the reason for perforating sheets of stamps, but what is meant by 'Perforated 16'? It does NOT mean that there are 16 holes along the top of the stamp, unless the stamp happens to measure exactly 2 centimetres. That should be enough to show that 'Perforated 16' means the number of holes in 2 centimetres of stamp.

If the stamp is less than 2 centimetres then there will be less than 16 holes. If it is more than 2 centimetres then there will be more than 16 holes. Perforated

Some Hints for Beginners

16 by 15 means that along the top and the bottom there are 16 holes per 2 centimetres of stamp and along the sides there will be 15 holes per 2 centimetres.

Interruptions

Sometimes it happens that a different perforation is found on all four sides. In that case the figures would be given as the hands of the clock. Some countries find that the perforation so weakens the paper that they do not complete the perforating of the whole stamp. In that case it is called 'Interrupted perforation' and a glance at the illustration should be sufficient to make that clear.

Some countries have allowed firms to



Interrupted perforation from Holland

have their initials perforated in the stamps. The idea is to assist in catching a thief if the stamps are incorrectly used. Stamps which are so defaced should not be placed in the collection if it can be helped. Common specimens should be thrown away at once, but better stamps should be kept and as soon as opportunity occurs they should be exchanged.

There are some exceptions to the above. Occasionally you will come across stamps with the letters 'O S' perforated in the face; this means 'On Service'. The second illustration from Australia shows what is meant.

Shortly we will give some more notes on what should and what should not go in the Postage Stamp Album.

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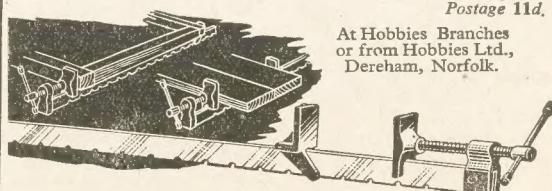
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(Continued on page 284)

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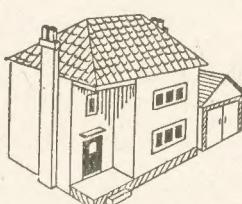
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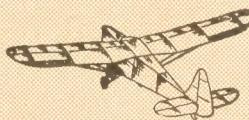
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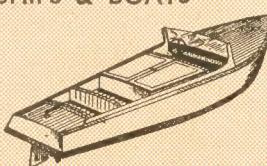


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